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Document Version

Publisher's PDF, also known as Version of record

Citation for published version (Harvard):

Kim, MS & Duda, J 2003, 'The coping process: Cognitive appraisals of stress, coping strategies, and coping effectiveness', *The Sport Psychologist*, vol. 17, no. 4, pp. 406-425. <<http://<Go to ISI>://000187164000003>>

[Link to publication on Research at Birmingham portal](#)

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Checked for eligibility: October 2013

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The Coping Process: Cognitive Appraisals of Stress, Coping Strategies, and Coping Effectiveness

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This study examined the effectiveness of the reported coping responses utilized by 318 U.S. and 404 Korean athletes based on the Outcome model (i.e., considers perceived immediate and long-term outcomes) and the Goodness-of-Fit model (i.e., considers the fit between situational appraisal and coping strategies employed). Intercollegiate athletes provided information regarding frequency of psychological difficulties experienced during competition, their perceived controllability over such difficulties, and the reported coping strategies utilized to counter this particular stressor. Recursive path analyses revealed that both Active/Problem-Focused and Avoidance/Withdrawal coping were deemed immediately effective during competition. Active/Problem-Focused and Avoidance/Withdrawal coping strategies were, respectively, positively and negatively associated with all three long-term variables. Results partially supported the Goodness-of-Fit model among both Korean and U.S. athletes.

Participating in competitive sports requires that athletes not only develop and maintain a high level of sport ability, but also cultivate an arsenal of skills to cope with stressful encounters in the competitive environment (Hardy, Jones, & Gould, 1996). Empirical studies of the relation between the anxiety experienced by athletes and psychological adjustment have pointed to the importance of coping strategies in countering the negative effect of stressors in the athletic domain (Crocker, 1992; Madden, Summers, & Brown, 1990; Ntoumanis & Biddle, 1998). Indeed, considerable investigations have focused on coping strategies and/or psychological skills as significant determinants of sport performance and athletes' psychological

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well-being (Crocker, Kowalski, & Graham, 1998). However, limited work has been done on the effectiveness of the coping responses exhibited in competitive sport situations based on conceptual grounds (Dugdale, Eklund, & Gordon, 1999; Haney & Long, 1996; Ntoumanis & Biddle, 1998).

According to Lazarus and Folkman's transactional approach to psychological stress and coping, coping is defined as the changing thoughts and actions that an individual uses to manage the external and/or internal demands of a specific person-environment transaction that is appraised as stressful (Lazarus, 1991, 1999; Lazarus & Folkman, 1984). The transactional framework assumes that before any coping responses are executed in a particular stressful encounter, a person first cognitively evaluates what is at stake (primary appraisal) and then what can be done to deal with the situation (secondary appraisal of control over the stressor). Thus, in this framework, evoking a particular coping strategy is not a primary reaction designed to reduce the negative effects of stress, but rather a response to cognitive appraisals of a threatening condition. Potentially different appraisals are held to be the reason why individuals are expected to utilize different coping strategies to deal with different sources of stress.

Lazarus (1999) and Folkman (1991, 1992) have contended that the variables employed to measure the assumed critical facets of the coping process should be relevant and pertinent to the particular stressful event or context. However, previous work on coping in sport has not been specific with respect to identifying the stressor *per se*. Rather, the tendency has been to measure athletes' overall stress unspecified in terms of its scope and time frame (Crocker et al., 1998; Hardy et al., 1996). Overcoming previous limitations in previous sport research, the stressor examined in the current work was defined as psychological difficulties experienced by athletes in important competitions, which can lead to performance debilitation (Krohne & Hindel, 1988; Lee, 1990). Consonant with Smith's (1980) Cognitive-Affective Model, this approach centers on the cognitive-affective manifestations of stress that occur before individuals respond to such a stressful condition (e.g., via the evoking of coping strategies). That is, the focus is on the common stressful encounter, namely (for whatever reason) when an athlete feels that she or he is "losing it" mentally and emotionally while engaged in salient competitive events. Thus, the stressful circumstance is specified yet generalizable to numerous athletes from different sports, competitive levels, and circumstances.

Lazarus and Folkman (1984) and Folkman (1991, 1992) have also suggested that the efficacy of coping responses evoked in stressful situations should be determined. They suggested that the appropriateness of a strategy could be determined not only by its effect in a given encounter but also via its impact in the long term. To measure the immediate effects of the coping strategies employed, people report if an attempt to cope changed their mood, helped them solve or lighten their problems, or did not change the stressful situation at that moment in time. To examine coping effectiveness in the long term, Folkman and Lazarus propose that researchers should examine indices of psychological and physical well-being, positive affective states, and/or general satisfaction with the particular activity or situation (Folkman, 1992; Lazarus & Folkman, 1984). In sport settings, such variables have been found to be reflective of successful adaptation to the sport environment (Hanin, 2000).

A few studies in the sport domain have measured coping effectiveness by tapping athletes' perceptions of the efficacy of the coping strategies employed

at that moment (Dugdale et al., 1999; Ntoumanis & Biddle, 1998). For instance, when Ntoumanis and Biddle (1998) examined coping effectiveness associated with athletes' general emotions (assumed to be an indicator of *long-term effectiveness* of coping strategy use), they found that the suppression of the competitive activity, seeking social support, and effort-related coping strategies positively predicted positive affect. Meanwhile, behavioral disengagement, venting of emotions, and seeking social support coping strategies were positively associated with negative affect. In the present study, indicators of both short-term (i.e., during the competition) and long-term coping effectiveness were considered.

Folkman (1991, 1992) has proposed that coping efforts and effectiveness should not be examined in regard to short- or long-term coping outcomes only. Rather, she suggested that researchers should consider the quality of the coping exhibited, pointing out that some causes of stress are so powerful (e.g., a serious injury) that an individual may not be able to change the outcome (e.g., sitting out of competition) in that situation. To examine the coping quality rather than the outcomes associated with coping behaviors, Folkman (1991, 1992) proposed the goodness-of-fit model of coping effectiveness. There are two fits that need to be tested with respect to this model. The first fit refers to the match between what is actually going on in the person-environment transaction and the person's appraisal of the personal significance of that transaction. When a misappraisal exists, the individual might "make a mountain out of a molehill" or erroneously downplay a serious and demanding situation. The second fit refers to the congruence between situational appraisals of controllability (i.e., at the secondary appraisal level) and reported coping strategies. Generally, problem-focused coping is held to be appropriate in encounters that hold the potential for personal control, whether in regard to the outcomes of the particular encounter or its recurrence in the future. On the other hand, emotion-focused coping is deemed appropriate in encounters where there is little the individual can do to control the outcome or its reappearance. It is expected that patterns of coping will include both major coping functions, but the relative amounts of problem- and emotion-focused coping strategies should differ depending on secondary appraisals of control (Folkman, 1991, 1992).

Empirical investigations have supported these predictions (Anshel & Kaissidis, 1997; Bowman & Stern, 1995; Vitaliano, DeWolfe, Maiuro, Russo, & Katon, 1990). For example, Anshel and Kaissidis (1997) examined the effect of cognitive appraisals of situationally-specific stressful encounters and coping style on the coping responses of basketball players. They found that high perceived controllability over a certain stressful situation was positively linked with the use of active/problem-focused forms of coping, and low perceived control corresponded with a greater employment of emotional-focused coping strategies. A study by Haney and Long (1996) reported athletes' perceptions of control coupled with self-efficacy to be the major predictors of reported use of engagement coping strategies.

The current study looked at potential cultural variation in the interrelationships between perceptions of control over the stressor, reported coping responses, and coping effectiveness in the case of athletes representing two different cultural groups, that is, Korea and the U.S. Perceptions of and responses to a threatening condition are shaped by not only the resources available, but also people's abilities to cope with the environment that may be endorsed or prohibited by cultural values and norms (Anshel, Kim, Kim, Chang, & Eom, 2001; Lazarus, 1999; Lazarus

& Folkman, 1984; Mechanic, 1974; Ntoumanis & Biddle, 1998). According to mainstream psychology research, people from collectivistic Asian cultures tend to utilize more emotional and acceptance coping strategies (e.g., projection, acceptance, religion, and perseverance), while people in individualistic Western societies are prone to employ more active and problem-focused coping strategies when encountering adversity (Ahmoïessau & Trommsdorff, 1996; Chataway & Berry, 1989). Qualitative studies of Korean athletes have been conducted to examine how they deal with stressful events (Chang, 1996; Park, 2000). The findings indicated that overall, the Korean athletes utilized similar coping strategies to U.S. elite athletes, for example, employing mental skills, planning, and physical training.

In sum, the purpose of the present research was to examine the effectiveness of the reported coping responses provided by athletes based on two proposed models. First, the outcome model (see Figure 1) was tested by asking athletes directly about the immediate effectiveness of each coping strategy employed and how much they were satisfied with their sport career, enjoyed their sport, and desired to persist in their sport in the following year. The model assumes that active/problem-focused and avoidance/withdrawal coping strategies would be positively associated with perceived immediate effectiveness of the coping strategy employed. However, the former strategies were expected to be positively and latter coping responses negatively linked to the indices of long-term effectiveness.

The Goodness-of-Fit model was tested by examining the fit between appraisal of stress and the coping strategies utilized by athletes to counter the stressor. It was hypothesized that athletes would be more likely to turn to the use of active and problem-focused coping strategies when the stressful situation is appraised as controllable and evoke avoidance and/or behavioral and mental withdrawal coping strategies when they perceived there is nothing they could do to remedy the troubled situation.

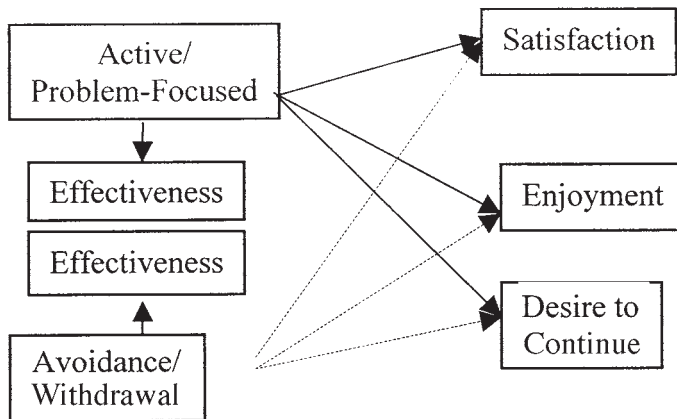


Figure 1 — Theoretical relationships between coping strategies and their immediate and long-term effectiveness (solid arrows indicate positive links and broken arrows indicate negative links).

The two models of coping effectiveness were tested across two cultures, Korean and U.S., to examine potential cultural variation. Due to the dearth of information regarding differences in stress and coping processes among U.S. and Korean athletes, these analyses were undertaken in an exploratory manner.

Method

Participants

Participants in this study included 318 U.S. athletes (male $n = 168$ and female $n = 150$; Caucasian $n = 244$; African American $n = 44$; Hispanic $n = 10$; others and unidentified $n = 20$) from Division I universities and 404 Korean athletes from Division I equivalent universities in Korea (male $n = 314$ and female $n = 90$). Participants were on the average $20 + 1.23$ (Korean) and $19.69 + 1.3$ (U.S.) years of age and were involved in diverse sports such as basketball, volleyball, soccer, handball, track and field, swimming, softball, or golf for an average of $8.57 + 2.81$ years for the Korean athletes and $10.1 + 4.06$ years for the U.S. athletes.

Instruments

With respect to the administration of the multisection inventory to the Korean athletes, all instruments employed in this study were first translated from English to Korean by the first author. Then the content-related validity of the Korean versions of the targeted measures was examined by a group of Korean graduate students majoring in sport psychology from a university in Korea. Back-translation procedures were then employed to provide evidence of linguistic equivalence as suggested by Duda and Hayashi (1998).

Experience of Psychological Difficulties in Competition. Five items were employed to examine reported frequencies of psychological difficulties (i.e., over arousal, performance worries, distraction or loss of concentration, low confidence, and frustration) experienced by the athletes in previous important competitions over the past 6 months. Responses were indicated on a 5-point scale with 1 = *never experienced* and 5 = *experienced always*. The psychological difficulties tapped have emerged as major difficulties experienced by athletes during competition and key distinguishing factors between successful and less successful athletes in the sport psychology literature (e.g., Mahoney, Gabriel, & Perkins, 1987; Murphy, 1988; Vealey, 1988). The athletes were provided brief descriptions¹ of each psychological difficulty, which were derived from past work on elite athletes, to help the current study participants understand and interpret the difficulties in similar ways (e.g., Cohn, 1990; Gould, Eklund, & Jackson, 1992; Lee, 1990; Park, 2000).

Cognitive Appraisals of Stress Experienced. As suggested by Lazarus and Folkman (1984) and Thoits (1992), the athletes' (secondary) cognitive appraisal of the stressor was assessed via an examination of their perceptions of controllability over the stress experienced. The athletes were asked how much control they thought they had over each psychological difficulty experienced during the competition by indicating their response on a 5-point scale (1 = *no control at all* to 5 = *complete control*).

Coping Strategies. The coping strategies employed by athletes to counter negative psychological feelings and thoughts during sport competition were assessed via the Approach to Coping in Sport Questionnaire (ACSQ) developed

by Kim and colleagues (Kim, 1999; Kim, Duda, & Ntoumanis, in press; Kim, Duda, Tomas, & Balaguer, in press). When completing the ACSQ, the athletes responded on a 5-point Likert-type scale (1 = *never used* to 5 = *used always*) in terms of how often they used each coping strategy to immediately deal with the psychological difficulties noted. The ACSQ contains six subscales (i.e., Active Planning/Cognitive Restructuring, Emotional Calming, Mental Withdrawal, Seeking Social Support, Turning to Religion, and Behavioral Risk). The factorial validity of the instrument has been supported through exploratory and confirmatory factor analyses, respectively, in the case of both U.S. and Korean athletes (Kim, 1999; Kim et al., in press). Further details regarding the psychometric properties of the ACSQ-English and ACSQ-Korean are available from the first author.

Stone, Greenbert, Kennedy-Moore, and Newman (1991) indicated that it is difficult to deal empirically and conceptually with multiple types of coping responses because this can create an overwhelming number of combinations of coping strategies. With an eye toward parsimony regarding the models tested in the current study, the six dimensions of the ACSQ were reduced into two representative higher-order constructs (i.e., Active/Problem-Focused and Avoidance/Withdrawal Coping Strategies) based on the results of a second-order factor analyses utilizing maximum likelihood method with varimax rotation.

The findings stemming from the second-order factor analyses of the ACSQ with respect to the U.S. and Korean data revealed slight differences in the composition of the higher-order factors. In the case of the U.S. data, the Active Planning/Cognitive Restructuring, Emotional Calming, Seeking Social Support, and Turning to Religion subscales loaded on the Active/Problem-Focused higher-order dimension (Factor structure coefficients = .82, .87, .54, and .30, respectively; % of variance = 20.3) and the Behavioral Risk and Mental Withdrawal subscales loaded on the Avoidance/Withdrawal dimension (Factor structure coefficients = .83, and .42, respectively, % of variance = 41.0). For the Korean athletes, however, the Active/Problem-Focused coping dimension comprised of Active Planning/Cognitive Restructuring, Emotional Calming, and Behavioral Risk subscales (Factor structure coefficients = .89, .87, and .59, respectively; % of variance = 49.2), whereas Seeking Social Support, Turning to Religion, and Mental Withdrawal loaded on the Avoidance/Withdrawal higher-order dimension (Factor structure coefficients = .64, .68, and .86, respectively; % of variance = 18.1). These two higher-order coping dimensions were utilized in further analyses. Although the labeling of the two classifications of coping strategies varies in the literature, the two higher dimensions utilized in this study are consonant with what has been reported in previous research (e.g., Task, Emotion, and Avoidance coping strategies: Endler & Parker, 1990; Problem- and Emotion-Focused coping: Lazarus & Folkman, 1984; Active-Behavioral, Cognitive, and Avoidance coping: Pearlin & Schooler, 1978; Approach and Avoidance coping: Roth & Cohen, 1986; Engagement and Disengagement: Tobin, Holroyd, Reynolds, & Wigal, 1989).

Coping Effectiveness. The perceived immediate effectiveness of the coping strategies used by the athletes was assessed by asking them to indicate the degree to which each employed strategy was immediately (i.e., during the competition) effective in reducing, managing, or countering the psychological and performance-related problems in question. Responses ranged from 1 (*not effective at all*) to 5 (*very effective*). The long-term effectiveness of coping strategy use was measured by asking the athletes to indicate their degree of satisfaction with their athletic career

(e.g., “I am satisfied with what I have accomplished in my sport”), enjoyment of their sport (e.g., “I usually enjoy my sport”), and desire to continue in their sport (e.g., “If it were up to you, do you want to continue playing next year?”). Responses were provided on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Procedures

In a team or small group setting, the first author gave participants directions regarding how to fill out the multisection questionnaire. The coach and/or any authorities were not present during questionnaire administration. After explaining the purpose of the study and ensuring that participation in the study was voluntary and the athletes’ responses to the inventory would be kept strictly confidential, the athletes provided their informed consent to participate in this investigation. The entire administration procedure took between 25 - 30 minutes. The data analyzed in the current study was part of a larger data collection². In order to avoid “order effects” of questionnaires, multisection questionnaires were counterbalanced. That is, the (a) personality questionnaires, (b) stressor-appraisal-coping strategies-coping effectiveness measures, and (c) other questions regarding enjoyment, satisfaction, and desire to persist were randomly ordered.

Results

In order to examine expected relationships between a stressful condition, perceptions of control over the stress encountered, different types of coping strategies, and their immediate and long-term effectiveness, recursive path analyses were utilized using AMOS Version 4.0 (Arbuckle, 1999). Hatcher (1994) suggested that path analyses can be used to examine theoretical models that specify relationships between a number of observed variables and determine whether the hypothesized model successfully accounts for the actual relationships observed in the sample data.

Various fit indices were employed to determine the model fit, i.e., χ^2 tests, Goodness-of-Fit Index (GFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA) in this study (Hu & Bentler, 1995). These indices have been widely used in structure equation modeling and path analyses procedures. The GFI and CFI can range from 0.0 to 1.0, and the TLI could exceed 1.0. Cutoff values close to .95 or higher in these indices are considered desirable. It is suggested that an RMSEA value of .06 or less indicates a close fit and that a value less than .08 indicates an acceptable fit (Brown & Cudeck, 1992; Hu & Bentler, 1999). In addition, a series of multiple regression analyses were conducted to test the Goodness-of-Fit model using R^2 selection methods to determine better predictors of the use of coping strategies.

Descriptive Statistics

Means, SDs, and internal reliabilities of the measured variables are presented in Table 1. The observed alpha coefficient for the experience of psychological difficulties variables for US athletes was slightly lower ($\alpha = .63$) than the recommended criterion (Nunnally & Bernstein, 1994). When the corrected item-to-total correlation values were examined, the Over Arousal item was found to

Table 1 Means, Standard Deviations, Range and Internal Reliabilities (Cronbach's Alpha) of Observed Variables

Variables	U.S. Athletes				Korean Athletes			
	<i>M</i>	<i>SD</i>	α	Range	<i>M</i>	<i>SD</i>	α	Range
Stress and Appraisal								
Psychological Difficulties	14.78	3.32	.66	5-24	14.83	3.53	.82	5-25
Perceived Controllability	16.49	4.01	.74	5-25	13.56	3.18	.82	5-22
Coping Strategies								
Active/Problem-focused	3.33	.57	.71	1.6-4.8	3.00	.57	.79	1.3-4.2
Avoidance/Withdrawal	2.50	.65	.71	1.0-4.3	2.34	.62	.65	1.3-4.2
Reported Immediate Effectiveness Coping								
Active/Problem-focused	3.31	.58	.75	1.5-4.8	2.70	.59	.82	1.2-4.4
Avoidance/Withdrawal	2.23	.65	.72	1.0-4.8	2.06	.65	.67	1.0-4.2
Long-Term Effectiveness								
Satisfaction	3.52	.95	.89	1.0-5.0	3.06	.83	.78	1.0-5.0
Enjoyment	4.40	.53	.86	2.5-5.0	3.09	.75	.85	1.0-5.0
Desire to Continue	4.48	.93	N/A	1.0-5.0	3.47	1.35	N/A	1.0-5.0

be not significantly associated with the total scale score, i.e., $r = .18$. When the Over Arousal item was deleted, the alpha coefficient was slightly increased to .66. The corrected item-to-total correlations among the psychological difficulty items ranged from .36 - .49 in the case of the U.S. sample and .39-.62 among the Korean athletes. The observed Cronbach's alpha coefficient for each of the other instruments employed supported their internal reliability ($\alpha > \text{than } .70$) in the case of both the U.S. and Korean athlete samples.

Table 2 Correlations Among Observed Variables

Variables	1	2	3	4	5	6	7	8	9
1. Psychological Difficulties	—	-.30**	.02	.32**	-.07	.18**	-.21**	-.17**	-.19**
2. Perceived Controllability	-.07	—	.17**	-.06	.22**	.06	.25**	.19**	.13*
3. Active/Problem-focused Coping (AP)	.02	.21**	—	.14*	.89**	.23**	.20**	.13*	.09
4. Avoidance/Withdrawal Coping (AW)	.23**	.13**	.51**	—	.65**	.83**	-.02	-.04	-.13*
5. Perceived Immediate Effect of AP	-.05	.20**	.78**	.48**	—	.21**	.18**	.12*	.11*
6. Perceived Immediate Effect of AW	.11	.16**	.45**	.83**	.57**	—	.05	.03	-.01
7. Enjoyment	-.11*	.19**	.11*	-.12*	.15**	-.01	—	.24**	.33**
8. Satisfaction	-.13*	.20**	.09	-.04	.15**	.05	.50**	—	.07
9. Desire to Continue	-.10*	.17**	.06	-.10*	.07	-.08	.43**	.24**	—

Note. * $p < .05$. ** $p < .01$; the observed correlations for the U.S. sample are presented above the diagonal; the observed correlations for the Korean sample are below the diagonal.

Potential mean cultural group differences in the targeted variables were not examined in the present study due to the existing discrepancy in the item content of certain subscales (i.e., reported psychological difficulties) and the slight differential in the coping strategy content of the higher order coping dimensions. Instead, the model tests proposed were examined among the athletes from the two cultural groups independently.

An examination of the intercorrelations among the observed variables appeared to provide general support for the proposed interrelationships tested in the present study (see Table 2). That is, perceived controllability over the stress encountered was positively related to both Active/Problem-Focused and Avoidance/Withdrawal coping strategies among the Korean athletes, but only with Active/Problem-Focused coping strategies among U.S. athletes. Reported immediate effectiveness of each coping strategy dimension, regardless of the cultural group, was positively correlated with the use of Active/Problem-Focused and Avoidance/Withdrawal coping strategies. However, the reported use of Active/Problem-Focused coping strategies was positively related to enjoyment in both Korean and U.S. groups and satisfaction in the U.S. sample only. Moreover, the desire to continue one's sport involvement was negatively associated with the use of Avoidance/Withdrawal coping strategies among the U.S. athletes. It should be noted, however, that the magnitude of many of these statistically significant correlation coefficients is low to moderate.

Relationships Between Coping Strategies and Immediate and Long-Term Coping Effectiveness

Before conducting structural model tests of the models of coping effectiveness proposed using recursive path analyses, the normality of both data sets was examined. Results indicated that both data sets were violating normality assumptions. Univariate skewness ranged from $-.67$ to $.21$ for the Korean data and -1.85 to $.10$ for the U.S. data. In addition, univariate kurtosis revealed a range of $-.7$ to $.52$ for the Korean sample and $-.52$ to -2.9 in the case of the U.S. sample. Marida's (1974, cf. Arbuckle, 1999) coefficient of multivariate kurtosis emerged statistically significant in both data sets (multivariate Kurtosis = 6.9 , t -value = 6.1 , $p < .05$ in the Korean data; multivariate Kurtosis = 9.2 , t -value = 5.0 , $p < .05$ in the U.S. data). In order to remedy nonnormally distributed data and estimate standard errors for parameter estimates in subsequent analyses, a bootstrapping approach was utilized as suggested by Mooney and Duval (1993). This approach estimates standard errors for parameter estimates using the bootstrap algorithm of Efron and conducts analyses without the normal distribution assumptions. Efron and Tibshirani (1986) showed that the empirical sampling distribution driven by bootstrapping procedures can be reasonably approximated based on data from the original sample.

The Proposed Outcome Model Tests of the U.S. Data. Initial results of the path analyses for the U.S. group revealed somewhat unsatisfying fit indices; that is, χ^2 (13 , $N = 311$) = 99.5 , $p < .001$, GFI = $.92$, CFI = $.91$, TLI = $.85$, RMSEA = $.15$, 90 % confidence interval of RMSEA = $.12 - .17$. Therefore, modification indices (MI), as suggested by Jöreskog and Sörbom (1989), and the standardized residual matrix were reviewed. If each value of the residual matrix is near to zero, we can assume that the model fits the data well. A large residual (exceeding 2.0) may imply that there is an error in specifying the theoretical model to be

tested (Hatcher, 1994). Results of an examination of the MIs and the standardized residuals suggested allowing the error variance of enjoyment to covary with the error variance of reported satisfaction and desire to continue in one's sport. Allowing error terms between Active/Problem-Focused and Avoidance/Withdrawal coping strategies and between their corresponding reported immediate coping effectiveness to covary was also suggested. As these covariances made conceptual sense, they were included in the model. In addition, the standardized path coefficient of the path links from Avoidance/Withdrawal coping strategies to Satisfaction and Enjoyment were shown to be insignificant. So these path links were removed, and the model was reestimated.

With respect to the revised model, the Goodness-of-Fit indices revealed a relatively satisfactory model fit. Even though the resulting χ^2 value ($9, N = 311$) = 26.3, $p < .001$ suggested that the model did not fit the data overall, other indices indicated that the model fit the data relatively well, GFI = .98, CFI = .98, TLI = .96, RMSEA = .08, and 90 % confidence interval of RMSEA = .045 - .12. The final version of the outcome model of coping effectiveness in the case of the U.S. sample is depicted in Figure 2.

The Proposed Outcome Model Tests of the Korean Data. The same recursive path analyses procedures were applied to the Korean sample in order to examine possible cultural variations in the relationships among the observed variables. The initial path analyses results examining the proposed model revealed unsatisfactory fit indices, $\chi^2 (13, N = 404) = 443.7, p < .001$, GFI = .78, CFI = .64, TLI = .42, RMSEA = .29, 90 % confidence interval of RMSEA = .26-.31. The same modification procedures applied to the U.S. data were used with the Korean data. The observed MIs and the standardized residual matrix indicated that the Korean coping effectiveness model should be revised in a similar manner to what was the

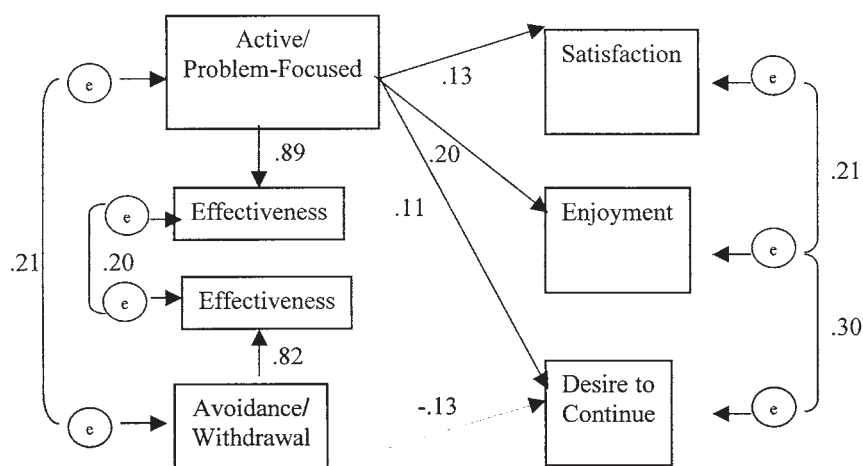


Figure 2 — Path analyses between coping strategies and perceived immediate and reported long-term effectiveness for the U.S. athletes.

All path coefficients were statistically significant at the $p < .05$

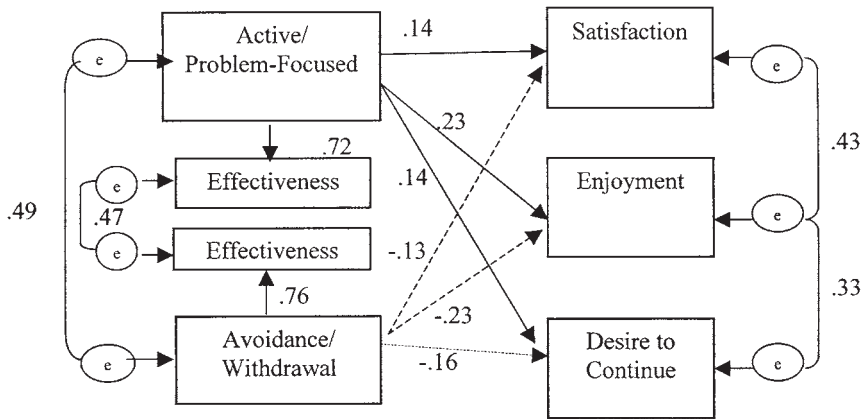


Figure 3 — Path analyses between coping strategies and perceived immediate and reported long-term effectiveness for the Korean athletes.

All path coefficients were statistically significant at the $p < .05$.

case for the U.S. data. Thus, the links between certain variables were revised based on conceptual justification as well as what the MIs and the standardized residual matrix suggested. That is, error variances between the Active/Problem-Focused and Avoidance/Withdrawal coping dimensions and between their corresponding perceived immediate effectiveness were allowed to covary. Also, the MIs indicated that there were strong relationships between the indices of long-term effectiveness (i.e., satisfaction, enjoyment, and the desire to continue) and letting them covary would improve the model fit.

As found in the case of the U.S. athletes, the model did not fit the data well in general as a significant χ^2 value ($9, N = 401$) = 58.6, $p < .001$ and somewhat higher value of RMSEA (i.e., = .12 with 90 % confidence interval of RMSEA = .09-.15) than recommended emerged (Brown & Cudeck, 1992). However, other model fit indices indicated that the model fit the data relatively well, GFI = .96, CFI = .96, TLI = .91. The modified model of the Korean outcome model of coping effectiveness is shown in Figure 3.

The Goodness-of-Fit Model

A series of multiple regression analyses were conducted to examine the appropriateness of the coping strategy reported based on Lazarus and Folkman's contentions regarding the appraisal of the demands and constraints of the situation (Folkman, 1991, 1992; Lazarus & Folkman, 1984). Perceived controllability and psychological difficulties reported by the athletes were entered as predictors and the six coping strategies as dependent variables. The R^2 selection method was employed to determine which independent variables best predicted each dependent variable. All six subscales of the ACSQ rather than the two higher order dimensions were utilized in these analyses to extend our understanding of the coping process (Folkman, 1992).

Partially supporting the goodness-of-fit hypothesis, results of multiple regression analyses are summarized in Table 3. When the athletes appraised their psychological difficulties as controllable, they were more likely to employ Emotional Calming, Active Planning/Cognitive Restructuring, and Seeking Social Support coping strategies in the case of both cultural groups. Psychological Difficulties experienced, however, was a positive predictor of the reported use of Mental Withdrawal coping strategies by both Korean and U.S. athletes.

Some different patterns in the relationships between the use of coping strategies and perceived controllability emerged between the U.S. and Korean athletes. The Korean athletes indicated that they were more likely to use Behavioral Risk coping strategies when they felt more control over the stressor encountered. This association did not emerge among the U.S. athletes. Further, the Korean athletes reported that they turned to religion, whether the stressful circumstance was deemed controllable or less controllable situations. However, the degree of psychological difficulties experienced was associated with the reported use of Turning to Religion coping strategy for the U.S. athletes.

Discussion

It has been argued that to understand the coping process, it is not sufficient to merely describe the coping strategies employed and develop measures of coping tendencies in particular environments (Folkman, 1992; Lazarus & Folkman, 1984). Folkman (1991, 1992) contended that researchers must determine the effectiveness of evoked coping responses in regard to how such efforts influence stress and stress-related outcomes as well as the overall quality of the coping process. The present study examined the effectiveness of athletes' reported coping responses based on two proposed models, that is the Outcome Model and Goodness-of-Fit Model across two cultural groups.

The Outcome Model of Coping Effectiveness

Results of path analyses revealed that consistent with what was hypothesized and in the case of both the U.S. and Korean athletes, both the employment of Active/Problem-Focused and Avoidance/Withdrawal coping strategies were deemed effective immediately when encountering the stressor. However, also consonant with expectations, there were differential relationships between indicators of long-term effectiveness and the two coping dimensions. Specifically, the use of Active/Problem Focused coping strategies was positively linked and Avoidance/Withdrawal coping strategy employment negatively related to these outcome variables. It should be noted though that in testing the outcome model, the fit indices observed for both cultural groups were relatively satisfactory. Clearly, there was room for improvement in both cases.

The finding that the athletes perceived the two overriding coping dimensions to be beneficial in the immediate competitive context implies that they may use Avoidance/Withdrawal coping strategies in a functional way to keep them concentrated on the task at hand during the competitive event. Anshel and Kaissidis (1997) also found a considerable use of avoidance coping strategies among athletes and proposed that such coping responses might be useful in acute stressful situations

Table 3 Summary of Multiple Regression Analyses of Perceived Controllability (PC) and Psychological Difficulties (PD) on Six Coping Strategies

U.S. Sample					Korean Sample					
Predictors	β	b	t	p-value	R ²	β	b	t	p-value	R ²
Emotional Calming										
PC	.03	.18	3.13	.001	.037	.03	.15	3.02	.003	.03
PD	-.01	-.04	-.68	.50	.013	.01	.06	1.15	.25	.002
$R^2_{total} = .04, F(2, 317) = 6.30, p = .002$										
Active Planning/Cognitive Restructuring										
PC	.028	.18	3.04	.003	.026	.04	.17	3.54	.0004	.03
PD	.001	.05	.81	.42	.00	.01	.03	.52	.60	.00
$R^2_{total} = .03, F(2, 317) = 4.61, p = .01$										
Seeking Social Support										
PC	.036	.16	2.79	.006	.02	.06	.25	5.15	.0001	.061
PD	.034	.12	2.13	.03	.01	.001	.04	.89	.68	.00
$R^2_{total} = .03, F(2, 317) = 4.83, p = .009$										
Behavioral Risk										
PC	.018	.08	1.43	.15	.001	.049	.20	4.04	.0001	.039
PD	.053	.20	3.41	.001	.03	.01	.02	.41	.68	.00
$R^2_{total} = .04, F(2, 317) = 5.93, p = .003$										
Mental Withdrawal										
PC	-.01	-.07	-1.34	.18	.031	.01	.07	1.26	.21	.097
PD	.07	.35	6.46	.0001	.139	.06	.302	6.36	.0001	.002
$R^2_{total} = .14, F(2, 317) = 26.6, p < .0001$										
Turning to Religion										
PC	.014	.05	.92	.36	.000	.031	.11	2.20	.03	.01
PD	.048	.16	2.69	.007	.020	.048	.19	3.82	.0002	.04
$R^2_{total} = .022, F(2, 317) = 3.62, p = .03$										

when the individual has little control over the difficult circumstance (which was not supported in the current findings) or when there are no short-term, negative effects for such avoidant behaviors (which may have been the case given the present results). Anshel (1990) also suggested that when the competition is ongoing, athletes cannot afford to get demotivated in trying conditions. Thus, they might try to ignore stressful events/experiences by temporarily withdrawing in order to attenuate the psychological difficulties experienced. Such propositions imply that the way a person copes with a stressor should have a direct effect on his/her emotions at that time. Previous studies have found that the employment of differential coping strategies account for changes in positive and negative emotions during stressful encounters (Folkman & Lazarus, 1988; Ntoumanis & Biddle, 1998). Consonant with the current findings, Ntoumanis and Biddle (1998) observed that athletes reported more positive affect when they perceived their venting emotions, suppression of competing activities and distancing coping strategies were effective in dealing with the stress experienced. It would be interesting, in subsequent studies, to examine not only the perceived immediate effectiveness of Active/Problem-Focused and Avoidance/Withdrawal coping strategies during athletic competition but also any associated modifications in mood states.

Folkman (1991), however, has argued that the emotions experienced during particular stressful encounters are not especially informative with respect to the individuals' long-term ability to handle (cognitively, affectively, behaviorally, and, perhaps, physiologically) the anxiety. She proposes that distal (i.e., long-term) outcomes should be examined when examining coping efficacy. In the present study, we assessed reported enjoyment, satisfaction, and the desire to continue one's involvement in the activity as indices of long-term effective coping. The findings revealed that there were positive associations between the use of Active/Problem-Focused coping strategies and the three long-term coping effectiveness variables. On the other hand, reported use of Avoidance/Withdrawal coping strategies negatively related with these three indicators in the Korean sample and was negatively linked with the desire to persist index of effectiveness only in the case of the U.S. athletes.

These findings reinforce the importance of assessing long-term outcomes when determining coping effectiveness (Folkman, 1991, 1992). Although the current samples of athletes felt the employment of what might be considered maladaptive coping strategies (i.e., Avoidance/Withdrawal responses) at the moment of experiencing psychological difficulties to be beneficial, the present results suggest that such coping responses might "come back to haunt" the athlete overall and over time. Such possibilities can only be adequately tested via longitudinal examinations of the interplay between stress, coping, and the consequences of such processes in sport.

The Goodness-of-Fit Model of Coping Effectiveness

A drawback of the coping outcome approach is that effective coping is equated with coping that solves problems and reduces negative emotions and cognitions, at the current time or in general over time. However, some difficult situations in sport cannot be regulated and/or solved. Therefore, an alternative model of coping effectiveness (i.e., the Goodness-of-Fit approach) was proposed by Folkman (1991,

1992). This model holds that effective coping is a function of the fit between the person's appraisal of stressful situations encountered and the resulting coping options. When individuals see their situations as amenable to change, it is expected that they will engage in more active coping and planning compared with individuals who perceive a stressful situation as uncontrollable. The latter group would be expected to report greater use of acceptance and/or denial coping strategies.

The findings stemming from multiple regression analyses provided partial support for these hypotheses, although it is important to recognize that in terms of each category of coping responses, the variance accounted for was minimal. More specifically, results indicated that when the stressful circumstance was appraised as controllable, both Korean and U.S. athletes were more likely to report engagement in Active/Cognitive Restructuring and Emotional Calming-Focused coping strategies when trying to deal with the stressor. However, level of psychological difficulties experienced emerged as a positive predictor of the use of Mental Withdrawal coping strategies in this study rather than the expected inverse relationship with perceived controllability. Terry (1991) also found that minimization coping strategies were not related with a person's appraisal of stress. She suggested that avoidance or withdrawal coping strategies might be independent from the specifics of the context at hand and more influenced by person or more general situational characteristics. It might be the case that when psychological difficulties occur often, athletes develop a habit of trying to withdraw from the situation. Further research is needed to examine the cause and effect relationships among the frequency (or perhaps intensity) of psychological difficulties during competition, appraisals of control over such stressful circumstances, and reported ensuing coping strategies.

Some cultural differences emerged with respect to the observed associations between appraisals of the stressor and reported specific coping strategies. For the Korean athletes, a positive association emerged between perceived controllability and the use of Behavioral Risk coping strategies. The use of such coping responses was not related with perceptions of control among the U.S. athletes but rather corresponded to reported performance difficulties. Illustrative items from the Behavioral Risk subscale include "I started to try even more difficult skills, strategies or techniques" and "I tried skills, strategies, or techniques that I rarely practiced." It might be the case that in the Korean culture, taking behavioral risks when encountering difficulties is construed as a more vigorous and (positively) daring approach. Further research is needed regarding the meaning of this coping strategy among athletes from different cultures.

The Turning to Religion coping strategy resulted in perplexing results. This coping response was more likely to be used when the athletes experienced psychological difficulties regardless of their perceived controllability over such a stressful circumstance among the U.S. athletes. With respect to the Korean athletes, however, perceived controllability over the stressor and the experience of psychological difficulties were associated with the tendency to turn to religious beliefs and practices. These findings imply that there might be culturally different forms of coping activities embedded in religious practices and beliefs. They also suggest that there is cultural diversity in whether athletes are more likely to turn to religion when the circumstances are deemed modifiable or not. Subsequent investigations of the role of religion in the stress and coping process among athletes from different religious and cultural backgrounds are warranted.

Concluding Remarks and Applied Implications

Although results of recursive path analyses and regression analyses generally supported the models proposed, some of the coefficients that emerged were very low in magnitude in spite of their statistical significance. Subsequent research might attempt to replicate these findings while keeping in mind that the observed associations could be attenuated by measurement error. If further investigations also fail to provide compelling evidence regarding the theoretically predicted correspondence between perceived control and coping responses, perhaps a challenge to or modifications of Folkman's (1991, 1992) Goodness-of-Fit model are warranted. Based on the present results, future examination of the proposed outcome model appears also necessary. According to MacCallum (1995), when researchers used modification indices to draw better estimations, validating the modified model using data from a new sample is recommended because those procedures are (at least partially) data driven.

At a conceptual level, appraisals are assumed to be influenced by antecedent person (e.g., individual differences in values, commitments, goals, trait anxiety, and beliefs) and situational characteristics (e.g., quality of social support resources; Folkman, 1991, 1992; Lazarus, 1999). Thus, these variables might be examined in subsequent research on coping to further understand how such factors impact interpretations of and responses from stressful competitive circumstances among athletes from different cultural backgrounds.

In conclusion, the findings of the present study suggest that the evaluation of coping effectiveness among athletes should not rely on short-term outcome measures only. Our results are consistent with the arguments of Folkman (1991, 1992) who advocated the use of several approaches (such as the Outcome model which considers both short- and long-term outcomes and the Goodness-of-Fit model) to evaluate coping effectiveness whenever possible.

From an applied perspective, these results intimate that sport psychology consultants should help athletes realize the potential negative consequences of Avoidance and Withdrawal coping behaviors over time. When athletes have been interviewed about the coping strategies used to manage their stress in previous studies (Gould, Finch, & Jackson, 1993; Park, 2000), they often tend to ignore stressors and/or try to withdraw from the difficult circumstance. As found in this study, those stress management strategies could be viewed as effective at that moment, but if employed repeatedly over time, there is a potential for a suppression of the athletes' positive feelings about their sport engagement. Given they have a choice, we would expect athletes who no longer feel well in and about their sport participation to discontinue their involvement in the activity.

In addition, the present findings reinforce the importance of promoting proficiency in the use of psychological skills among high-level athletes. For both the U.S. and Korean athletes in this study, the frequency of psychological difficulties witnessed during competition corresponded negatively to the targeted indicators of a positive sport experience. Among the U.S. athletes specifically, there seemed to be limited beliefs that they could do anything about such difficulties. Via systematic and continuous participation in mental skills training, athletes should garner greater control over their mental and emotional competitive states and, hopefully, this self-regulation should contribute to more adaptive and enjoyable sport engagement.

Indeed, the findings overall do point to the advantages of athletes perceiving greater control over difficult moments in competition. Thus, it might be beneficial for sport psychology consultants to assist athletes in being more realistic and optimistic in such appraisals. Lastly, the current results suggest that all professionals working in sport should be cognizant of possible cultural differences in athletes' experience of stressors, their appraisals, and ensuing attempts to cope.

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Authors' Notes

¹*Over arousal*: Physical feelings such as rapid heart rate, shortness of breath, tense muscles, dry mouth, etc., and/or being mentally too intense and/or excited. *Performance worries*: Feeling extremely worried and concerned about the competition and/or your performance. *Distraction/loss of concentration*: Feeling that you are unable to concentrate on what you have to do, and/or that you are easily distracted. *Low confidence*: Not believing you possess the ability to be successful or perform well in the competition. *Frustration*: A negative mood that is a result of making mistake(s), the inability to meet your goals and expectations, and/or the feeling that "things are not going your way."

² The data utilized in the present study is a subset of a larger data collection that was part of the first author's dissertation work under the supervision of Joan L. Duda at Purdue University.

Manuscript submitted: September 26, 2000

Revision received: August 1, 2003